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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,849	03/28/2001	Philippe R. Morin	9432-000132	1646

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EXAMINER

VO, HUYEN X

ART UNIT PAPER NUMBER

2655

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,849

Applicant(s)

MORIN, PHILIPPE R.

Examiner

Huyen Vo

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-11 and 15 is/are rejected.
- 7) ☒ Claim(s) 3-5, 12-14, and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

2. Claims 3-5, 12-14, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
3. The following is a statement of reasons for the indication of allowable subject matter: Jiang et al. (US Patent No. 6539353) disclose a confidence measuring method based on weighted confidence measure scores for each sub-word unit in the word. Laurila (EP 1020847) discloses a method for multistage speech recognition using confidence measures. Both Jiang et al. and Laurila fail to teach or suggest the step of dividing a minimum value of a speech recognition score by an average value of the speech recognition score over a predetermined period of time such that matching ratio results, the average value defining an estimated background score. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify either Jiang et al. or Laurila to include the above limitation. Therefore, claims 3-5, 12-14, and 16 would be allowed if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 6, 11, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al. (US Patent No. 6539353).

6. Regarding claim 1, Jiang et al. disclose a method for spotting words in a speech signal, the method comprising the steps of:

generating a first recognition score based on the speech signal and a lexicon entry for a first word, the first recognition score tracking an absolute value of log likelihood that the first word is in the speech signal (*col. 4, ln. 12-61*);

estimating a first background score based on the first recognition score (*col. 4, ln. 62 to col. 5, ln. 45, "filler model" and "anti model" are generated according to the recognition scores used to determine a confidence score*); and

calculating a first confidence score based on a matching ratio between a first minimum recognition value of the first recognition score and the first background score,

the first confidence score tracking a noise-corrected likelihood that the first word is in the speech signal (*col. 5, ln. 16 to col. 6, ln. 67*).

7. Regarding claim 2, Jiang et al. further disclose a method of claim 1 further, including the step of averaging the first recognition score over a predetermined period of time (*equation 1 in column 5*).

8. Regarding claim 6, Jiang et al. further disclose a method of claim 1 further, including the step of comparing the first confidence score to a predetermined confidence threshold, the first word being in the speech signal when the first confidence score exceeds the predetermined confidence threshold (*col. 6, ln. 24-46*).

9. Regarding claim 11, Jiang et al. further disclose a method of claim 1 further including the step of calculating the confidence score on a frame-by-frame basis (*col. 4, ln. 5-32*).

10. Regarding claim 15, Jiang et al. disclose a word spotting system comprising:
a speech recognizer for generating recognition scores based on a speech signal and lexicon entries for a plurality of words, the recognition scores tracking absolute likelihoods that the words are in the speech signal (*col. 4, ln. 12-61*); and

a spotting module for estimating background scores based on the recognition scores (*col. 4, ln. 62 to col. 5, ln. 45, "filler model" and "anti model" are generated according to the recognition scores used to determine a confidence score*);

said spotting module calculating confidence scores on a frame-by-frame basis based on matching ratios between minimum recognition values and the background scores, the confidence scores tracking noise-corrected likelihoods that the words are in the speech signal (*col. 5, ln. 16 to col. 6, ln. 67*).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US Patent No. 6539353) in view of Laurila (EP 1020847).

13. Regarding claim 7, Jiang et al. fail to specifically disclose a method of claim 6 further including the step of spotting a second word in the speech signal. However, Laurila teach the step of spotting a second word in the speech signal (*col. 7, ln 36-58*).

Since Jiang et al. and Laurila are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Laurila in order

to enhance speech recognition accuracy by requesting the user to speak the command again when recognition at the first time is uncertain.

14. Regarding claim 8, Jiang et al. further disclose a method of claim 7 further including the steps of: generating a recognition score based on the speech signal and a lexicon entry for a word, the recognition score tracking an absolute likelihood that the word is in the speech signal (*see the base claim 1 above*); estimating a background score based on the recognition score (*see the base claim 1 above*); and calculating a confidence score based on a matching ratio between a minimum recognition value and the second background score, the confidence score tracking a noise-corrected likelihood that the second word is in the speech signal (*see the base claim 1 above*).

Jiang et al. fail to specifically disclose that the recognition score is the second recognition score for the second word, the background score is the second background score, and the confidence score is the second confidence score. However, Laurila further teach the step of accepting the command a second time when recognition of the command at the first time is uncertain (*col. 7, ln. 40-58, the same command is accepted at a second time and it is processed in the same manner as the first time as discussed in the based claim 1 above*).

Since Jiang et al. and Laurila are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Laurila in order

to enhance speech recognition accuracy by requesting the user to speak the command again when recognition at the first time is uncertain.

15. Regarding claim 9, Jiang et al. further disclose the step of comparing the confidence score to the predetermined confidence threshold, the word being in the speech signal when the confidence score exceeds the predetermined confidence threshold (*col. 6, ln. 24-50*). Jiang et al. fail to specifically disclose that the confidence score being the second confidence score, and the word being the second word. However, Laurila further teach that the confidence score being the second confidence score, and the word being the second word (*col. 7, ln. 40 to col. 8, ln. 16*).

Since Jiang et al. and Laurila are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Laurila in order to enhance speech recognition accuracy by requesting the user to speak the command again when recognition at the first time is uncertain.

16. Regarding claim 10, Jiang et al. fail to disclose a method of claim 9 further including the steps of: determining whether the first word and the second word correspond to a common time period within the speech signal; and selecting between the first word and the second word based on the first confidence score and the second confidence score when the first word and the second word correspond to the common time period.

However, Laurila further teach the steps of: determining whether the first word and the second word correspond to a common time period within the speech signal (*col. 8, ln. 35-58, the DTW process*); and selecting between the first word and the second word based on the first confidence score and the second confidence score when the first word and the second word correspond to the common time period (*col. 8, ln. 15-30, comparing scores of the first and second recognition*).

Since Jiang et al. and Laurila are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Jiang et al. by incorporating the teaching of Laurila in order to enhance speech recognition accuracy by comparing and selecting the best result.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

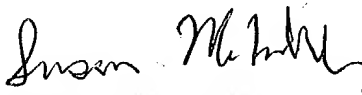
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2655

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo

October 5, 2004


SUSAN MCFADDEN
PRIMARY EXAMINER